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ABSTRACT

The necessity for reforming public education is evidenced in part by the failures of past programs and in part by the requirements of the future. The anti-school mood of the present is forcing a more realistic evaluation of the potentiality education possesses in counteracting the disintegrative forces of family breakdown, individual deprivation, economic disturbance, etc., yet the mystique of education's power remains: sensible policies should produce problem-free schools, in turn producing social order. However, formulation of effective policy is hindered by lack of consensus on educational aims, by the intricacy of the educational process, by multiple causation phenomena, and by a human over-reliance upon simplistic solutions. A major problem in educational reform is that it cannot indeed be done on a strictly rational basis: the conception of the problem dictates the nature of the solution--if the portrayal of the problem is erroneous, then the solution will also be. Educational policy might benefit from an effort to reconceptualize the basic problems, but, again, the obstructions to rational reconstruction are many: vicissitudes of fate, the fickleness of human aspirations, and a lack of acuteness in matters of judgemental arbitration. Future strategy may best be described in terms of unconventional uses of the conventional: the development of skills for coping with rapid change, for vocational growth and personal maturation, the evolution of year-round, life-long learning programs, the integration of technological advances into the instructional process. Educational research must serve educational reformation by producing quasi-experimental designs open to evaluation, rather than offering "fail-proof" solutions. Various dominant themes, identified by Bronfenbrenner, Fuller, Salk, and Boulding, might serve as starting points for such research development. (MB)

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The Reformation of Schooling

Louis Rubin

It is perhaps pretentious to speak of reformation, with respect to the educational system but in the sense that the term denotes rectification and reconstitution, it is perhaps defensible. We have reached a point where the many innovations initiated during the past two decades can be subjected to relatively objective scrutiny and assessed with regard to their comparative strengths and weaknesses. Sufficient time, in most instances, has elapsed for the good and bad features to become apparent, for the achievement or non-achievement of anticipated objectives to be judged, and for the inevitable side-effects--both positive and negative--to have materialized. A process of reappraisal, therefore, can serve to indicate what aspects of the innovations underway should be retained, what aspects should be modified, and what provisions should be resurrected from earlier practice. The peculiarities of change are such that attempted refinements sometimes generate more harm than good and, conversely, old customs and traditions--eliminated in the search for something better--must eventually be restored. The needed reformation, consequently, involves a rebalancing among old and new elements.

The Continuing Search

The necessity for yet another round of rehabilitative effort, in the seemingly endless quest for an ideal program of public education, is prompted in part by the unresolved difficulties of the past, in part by the infirmities of the present, and in part by the requirements of the future. Thus, Tyler's concerns regarding our long-standing inability to produce a completely literate society, Bronfenbrenner's description of the conditions characterizing the cur-

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rent progression toward family disintegration, and Salk's projections of a world future that will demand both human freedom and human constraint, all are contributory to the present need for a sustained period of instauration. The reformation, therefore, must be in the shape of a gradual evolution which takes its direction from a variety of sources: new places of research evidence, the changing social environment, altering human expectations, and a multitude of ontogenetic impediments.

On the surfact, the ebb and flow resulting from our inability to move decisively from problem-recognition to problem-solution, the interminable peregrinations between old theoretical ground and new, and the endless policy reversals would seem to constitute a futile and irrational course. In the face of our recurring difficulties, it might be better, logically, to shift our sights in another direction. A viable alternative, however, has not yet penetrated our consciousness. Or, approaching the dilemma from another standpoint, one might ask why are the problems so intractable; why do we appear, time and time again, to misread the signs, and why are so many of our endeavors counter-productive? One might also ask, how is it that Coleman's conclusions as to the effects of segregation, Bloom's conception of mastery learning, Cronbach's theories regarding aptitude-treatment-intervention, and even John Dewey's hallowed precepts on the educational impact of experience all seem to have come to so little?

Having spent millions and millions on the study of teaching, what insanity now compels us to conclude that no pedagogical method will produce guaranteed results? The answers to these questions, obviously, are far from clear but an explanation of sorts may exist: Education is a social enterprise and social enterprises, by their nature, defy scientific accuracy, permanent problem-

solutions, and error-proof policies.

It is because the disorderliness of social progress is not widely understood that the public's disenchantment with its societal institutions tends to peak during times of unusual stress. That we presently are in such a time hardly needs commentary. In particular, the mood at the moment is heavily anti-school. People have now questioned not merely the worth of education, in particular, but the prospects of human perfectability, in general. The commonplace presumption is that in a era of stupifying technological prowess, an effective and efficient school system should not be difficult to achieve. The fact of the matter, nonetheless, is that it probably is considerably easier to program research lending to organ transplants in humans than to devise workable procedures for eliminating poverty, overcoming defects in the system of criminal justice, or enhancing educational achievement. The unknowns of science, in short, are a good deal more tidy and precise than the enigmas of social organizations.

The disillusionment has been further enlarged, in substantial degree, by the improvident bravada of some research experts. In contrast to our sweeping promises and assurances of the early sixties, for example, we now are forced to acknowledge that the intervention of the state cannot always eradicate breakdowns in family structure, that compensatory education cannot routinely counterbalance a background of deprivation, and that we have still to find a way of making schooling attractive for all youth. Unemployment and inflation have taken their toll on the public spirit; crime and violence have maligned the domestic tranquility; and corruption in high office has weakened the citizenry's confidence in its leadership, but for all of these liabilities, the ubiquitious mystique remains: sensible and rational policies could quickly produce problem-free schools, and problem-free schools could eliminate social disorder.

Because of the mystique, errors in educational policy habitually brook resentment and retribution. The schools are presently being subjected, for example, to an extraordinary range of criticism. For those who view education as the dominant vehicle to high-status vocations and material success, schooling has diminished in importance both because a declining job market has restricted vocational opportunity and because blue-collar jobs have begun to offer salary rewards rivaling those in many white-collar pursuits. Public education also is viewed in similar contempt by those in the radical camp who see social awareness as the indispensable element in building a better society: because schools teach orthodox dogma and encourage conformity to prevailing values and beliefs youth is left with a naive understanding of the way things are and a lack of sophistication regarding the social system's failings. And for those who are basically opposed to universal, compulsory education in the first place, the schools are regarded--not only as unnecessary but as a major obstacle to a self-regulating societal order. From virtually all quarters, in fact, one hears complaints that the educational system's operating principles--and hence the policies from which these principles stem--are defective. Three questions therefore arise: Can the schools' credibility and respect be restored? If so, will the restoration demand an alteration in present policies? And, third, if alterations are required, what form and substance must they take?

Assuming, for the moment, that credibility can be recouped, and assuming, as well, that at least some policy changes are necessary, it would be sensible to ask: What can be extracted from the research and theory stockpile in the way of reformation clues? It is precisely here, however, that the difficulties are compounded. A return to old ways, say, a "back to basics" movement, may bring a return of the old benefits, but it may also resurrect old disadvantages.

Indeed, it was exactly these disadvantages that accounted for the initial interruption of earlier policies.

It is also conceivable, however, that the old ways will no longer produce the old benefits. The social scene is far from static and, with the passage of time, a shifting set of variables might well yield entirely different results. It is further conceivable, moreover, that the old ways are no longer feasible, or that they will--in present time--produce intolerable side-effects. Finally, of course, it is entirely possible that the reinstitution of old procedures would produce results substantially better than those achieved through current procedures. The critical point, however, is that we have no way of knowing in advance which of these contingencies will prevail. The nuances and complexities of teaching and learning are sufficiently great that we cannot in most instances, without experimentation, predict what will be what before the fact, and must therefore rely upon trial and error. If, obviously, we were capable of accurate prediction we could easily do away with all of our present planning problems.

It is this phenomena of situational unpredictability, perhaps, that most accounts for the striking lack of correspondence between research evidence and educational policy. Cohen and Garret*, to wit, have demonstrated that the relationship between research-generated knowledge and educational-decision making is negligible. Whether educational policy is viewed as a rubric of attitudes and assumptions--or as a predetermined plan for school improvement--or as a collection of organized programs aimed at a disignated end--it does seem to be heavily influenced by scientific data. Policy, in the main, is based upon a bit of verified fact, a bit of mythology, a bit of tradition, and a good deal

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*David K. Cohen and Michael S. Garret: Reforming Educational Policy with Applied Research: Harvard Educational Review: Vol. 45, No. 1, February 1975.

of wishful thinking. This is so, self-evidently, because when we do not command enough knowledge to move toward our objectives with precision, we must rely, in part, upon other more conjectural presumptions.

It therefore follows that more research data--even pure uncontaminated data--may not be of much consequence in influencing the decisions of policy makers. The social system functions through a labyrinth of confounded variables and thus is constructed, not out of adulterated facts alone, but rather, out of facts tinctured with beliefs. Hence, hwile it is sensible to do research on educational policy, in the interest of scholarly understanding; and while it may be desirable to carry on other research, in the interest of reducing human ignorance--it does not make sense to perform research in the expectation that the results will necessarily alter educational policy.

Be this as it may, we nevertheless are left with the reality that effective educational reform is largely dependent upon devising better educational policy. The net conclusion, therefore, may be that desirable policy changes must be achieved through constructive propaganda--aimed at the reshaping of public attitude--rather than through the accumulation of further research data alone. While the data can be incorporated in legitimate opinion-molding activities, it cannot, in and of itself, produce corresponding policy revisions.

Policy is more flexible and less rational than research evidence because it is bound by fewer constraints. Whereas research conclusions must be restricted to inferences deduced from verified evidence, policy decisions can be based upon literally anything that seems appropriate or efficacious. If, then, research findings and policy decisions each rest upon different foundations, their relationship is essentially independent rather than reciprocal. Put another way, in the absence of an interactive nexus, better research

evidence will not improve social policy because it has no inherent capacity for making policy decisions more rational. Policy irrationality, then, must be dealt with in some other way.

Education, it might be noted, is not alone in its policy distress. Vociferous objections are registered by constituencies on programs of urban renewal, environmental conservation regulations, law enforcement tactics, the placement of freeways, social security provisions, and more. In all of these instances, existing policies are often viewed as inept, and people wonder with exasperation why the experts cannot be more expert.

Real and Imagined Barriers

Our limited power in formulating effective educational policy stems from a conglomerate of impediments--each of which interferes with ready access to sure solutions. Considerable confusion, as an illustration, results from the lack of consensus on dominant educational aims. Worse, it is improbable that such consensus can ever be attained. Present indications, in fact, are that the future will be characterized by more rather than less diversity in valuational preferences.

Consider, for example, our present quandaries with regard to the teaching of moral standards. Some people believe that moral values should be taught; others do not. But even within the ranks of those who favor some form of moral education, however, a spate of opinion differences exist. What values should be stressed? What standards in relation to these values should be established? What kinds of instructional methods are defensible? Should we defer to student autonomy in value-determination, or seek to inculcate particular convictions? Is behavior modification an acceptable or unacceptable technique? In the absence of agreement on these and other related issues, the usual policy--where consensus seems prohibitive--is no policy.

Contradictory views on educational goals, moreover, seldom are completely evident before a large-scale test has occurred. It was not until a broad and comprehensively-datailed curriculum, Man: A Course of Study, had been planned, researched, designed, and implemented, that dispute arose as to the desirability of teaching children about cultural norms different from their own, and as to the propriety of government involvement in curriculum development and dissemination. Only after a program has been put into effect, in many instances, do the overall consequences and the policy-related fall-out become apparent.

Another difficulty is situated in the sheer intricacy of the educational process. Because of the vast array of factors which affect learning, the determination of weaknesses in an instructional program is far from simple. Take, for instance, the invention of a new method for teaching arithmetic. It is relatively easy, after trail, to ascertain that the method does not work. Discovering, in specific, why it does not work, however, is considerably more complicated. The trouble may lay either in the teaching method or in the way it is used. If the method is at fault, what particular element is defective? Is it then better to rebuild the method in order to overcome the deficiency, or is it better, rather, to discard and seek a replacement? If, then, a replacement is introduced, and the results again are disappointing, the trouble-shooting analysis must begin anew.

Suppose, however, that re-checks show instead that the method is valid and has been used appropriately. In this instance, the learner's lack of achievement may be attributable to an absence of essential experiences in the child's background. Should this be the case, is it more advantagious to provide the prerequisite experience, devise an alternative method, or abandon the objective? If the decision is made to institute compensatory experiences, and the method again proves ineffectual, do we then alter the compensating activities, remodel

the method, test it with older learners who have reached a higher degree of acculturation, and so on?

Similar impediments to effective policy--associated with teacher personality, learner idiosyncrasies, peculiarities in school settings, the length and duration of teaching exposure, and motivational factors--could, of course, also be described. It suffices, perhaps, to observe, in sum, that the range of complexity associated with teaching and learning is sufficiently great to make the accurate detection of internal complications a formidable and treacherous enterprise, one in which the likelihood of error is exceedingly high.

Because mistakes and misjedgments come easy in problem-solving, a related difficulty lies in the compounding of error. If, to wit, two plus two are taken to be five, two plus two are then seen as seven, and two, plus two, plus two, become nine. Judgmental lapses, at any given point in the solution search, if unrecognized, will ultimately lead to more and more blunders. Yet, it often is necessary to go a considerable distance in programmatic development before an earlier error becomes apparent. Indeed, in cases, an innovation must be brought to fruition and put to practical test before its inherent weaknesses become obvious. Since problem-solving efforts typically occur in highly artificial environments, it is only after the full impact of reality has exerted its force that unsuspected softspots become known. Thus, we have, in the teaching of reading, shifted from a stress upon phonics to an emphasis upon word recognition, and then reversed direction, in order to achieve a workable balance. The intractability of locating fatal flaws, coupled with the often inevitable period of error-compounding, are together chiefly responsible for the ubiquitous "pendular" effect in curriculum change. The bias toward cognitive objectives, during the fifties, for example, later gave way to a substantially greater interest in affective goals, during the late sixties, and--judging by present trends--a reversion is again imminent.

Planning, problem-solving, and policy-setting are further hampered by multiple-causation phenomena. At the moment, to wit, we are preoccupied with declining scores on standardized tests. Why has student achievement dropped? Is it because less reading goes on in the home, because the young devote too much time to TV, or because the test terminology is obsolete and thus unclear to students? Similarly, the lower scores could also be attributable to teacher inefficiency, to inadequate student motivation, or to a transformed curriculum wherein substantial attention is given to educational pursuits not embodied by the tests, thereby reducing the time available for instruction on those objectives that are tested. What factor, or combination of factors, is dominant? Do all of the contributing elements operate in concert, in equal or unequal degree, simultaneously or sequentially? Are the critical forces at play of parallel influence in all subject-areas, or do variations exist? The tasks of distinguishing cause from effect, and of discriminating between problems and problem-symptoms, in short, are sufficiently troublesome as to defy certainty.

Systematic knowledge, obviously, is an indispensable ingredient in problem-solving. But until the necessary critical mass of understanding has been reached, the probability of miscalculation remains high. Moreover, since policies are rarely based upon bona fide evidence alone, existing mind-sets, predisposition, and biases tend to distort policy decisions until an adequate knowledge base becomes available. In times of social dissension, particularly, when considerable controversy exists over the proper resolution of societal dilemmas, opposing factions are understandably inclined to promote solutions that are partially self-serving.

In the case of the shrinking test scores, for example, a great many notions have been set forth, none of which, unfortunately, add up to a satisfactory explanation. As a result, the protagonists of basic education can

capitalize upon circumstance and argue for a greater emphasis upon direct reading instruction. Similarly, those who champion competency-based teacher training may seek to explain the low scores on the basis of teacher inefficiency; the afficianados of unconventional testing will fault the methodological design of the psychometrics, and theorists advocating a curtailment of school responsibility are quick to argue that the educational system cannot be held accountable for a lack of intellectual stimulation in the home.

It is entirely possible, of course, that none of these suggested defects are primarily responsible for reduced academic achievement, and that the real villain is yet to come to light. Each potential weakness, nonetheless, must be tested and disclaimed before attention can be directed elsewhere.

What, however, may well be the strongest inhibitor of rational policy formulation derives from our habit of relying upon prosaic attitudes-of-mind that breed repeated problem-misconstruction. Sanity is often deceptive and all that appears reasonable may not always be so. It is not uncommon, in human events, to find periodic instances in which the seemingly irrational is really quite rational, and conversely, instances in which what is presumed logical proves, ultimately, to have been highly illogical. The systemic tribulations of New York City provide a ready illustration. A millino-one hundred thousand New Yorkers presently are on relief. Between 1960 and 1974 the number of city employees increased by 69.9%--an expansion necessitated in substantial measure by the need to provide additional services for those on welfare. The need to relieve the misery of the poor, through welfare, was undeniable. It was not foreseen, however, that thousands of municipal personnel would be required to maintain the welfare provisions. As a resuls, 400,000 people now work for the city. The welfare programs, in sum, have themselves become a kind of minor growth industry. Even under this load the

system functioned, for a time, until it suddenly became apparent that--to sustain the growth industry--it was necessary for more and more people to forego self-support and join the welfare ranks. As things turned out, therefore, an ostensibly logical solution to a problem was, in actuality, a form of madness.

A similar example can be found in the case of penal reform. Acting upon a reactional set of constructs, criminologists urged that prisons be made agencies of rehabilitation rather than punishment. The short-sightedness of the policy is now a matter of record and we are about to embark upon a remigration to old ways wherein compassionate--but swift, certain and inescapable punishment--is seen as the principal deterrent to crime.

The Limits of Rationality

Rittel and Webber* have demonstrated that in many social dilemmas, the problem cannot be defined until the solution has been grasped. Arguing, first, that it usually is impossible to describe policy problems definitively, and second, that in a pluralistic society, policies serving the overall public good are generally prohibitive, they suggest that our conception of a problem, in turn, dictates the nature of the solution, just as the fabrication of a solution mirrors our definition of the problem. That is, once we formulate a conception of a problem and identify the elements to be corrected, we immediately commit ourselves to a restricted set of solutions, each of which must be aimed at overcoming the presumed weakness. If, then, our portrayal of the problem is erroneous, all of our attempted solutions will also fail. Further, so long as we stay with

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*Horst W. J. Rittel and Melvin M. Webber: Dilemmas in a General Theory of Planning: Policy Sciences, Vol. IV, No. 2, June 1973.

an incorrect problem-formulation, a workable solution will elude us simply because each of our efforts take us in the wrong direction.

Approaching the same dilemma from a slightly different context, Watzlawick, Weakland, and Fisch* contend that faulty problem-formation has been largely responsible for our inability to solve many of our social riddles. The history of theory is replete with testimony to the human capacity for fixation on a unitary, often misconceived, point of view. Much of what we call serendipity, in fact, is nothing more than a sudden and unexpected escape from an obsessional formulation.

Educational policy might well profit, therefore, from a calculated effort to reconceptualize the pervasive problems that have thus far appeared unsolvable. Such reconceptualization would consist of taking a fresh look at a quandary or an impasse in order to reconstruct its meaning. Beyond a concerted effort to avoid being seduced by the obvious, reconceptualization requires that attempts be made to formulate a variety of interpretations, each of which accomodates the existing conditions and restraints. Problem fixation is prompted by emotional leanings, by attitudinal predispositions, and by ingrained conceptual perceptions. Once these prompts are disengaged, it sometimes is possible to place dilemma in a new framework, conceive of prospective solutions that take unanticipated paths, and then reason analytically about their viability. Human behavior is shaped, less by actualities in the conditions which exist, than by the habitual responses we call human nature and by perceptual orientation. Everything, in a word, depends upon the way in which we interpret a situation. To reinterpret, redefine and reconceive, consequently, is to open our minds to a new universe of possibilities.

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*Paul Watzlawick, John Weakland, and Richard isch: Change: Principles of Problem Formation and Problem Resolution, W. W. Norton and Co., New York, 1974.

In the interest of simplicity, an everyday example perhaps will suffice. Many people experience difficulty in losing weight. In the conventional construction of the problem, excessive weight is seen as an imbalance between expended energy and caloric intake. The customary solution, consequently, is either to reduce food consumption or expand energy output and thus restore balance. Frequently, however, the solution does not succeed because individuals find it "impossible" to obey dietary restrictions. Hypnotism, self-deception, and similar contrivances may then be initiated in order to reinforce self-control. The locus of difficulty is conceived of as inability to curb appetite. In the relatively recent past, hwoever, considerable counseling success--following upon previous failure-- has been achieved by reconceptualizing the problem. Instead of targeting upon devices for increasing self-control, attention is directed toward identifying situations that stimulate a desire to eat. The solution, hence, lies in ignoring appetite entirely, and in seeking, instead, to eliminate stress situations which provike a desire for food.

The limits of rationality, too, take their toll in policy planning. Whether or not one believes in human perfectability or in the limitless possibilities for improving the social order, the plain fact is that human reason is not always adequate to the solution of all human predicaments. Contrary to the conventional aphorism, every problem, alas, amy not have its solution. In any given impasse, say, the lessening of drug abuse, many potential correctives can be generated. We could, for example, attempt to revitalize our programs of moral and ethical education; impose harsher penalties on the use of drugs in school facilities; permanently expel all "abusers" so that only "non-abusers" remained; liberalize our definition of drug abuse so that fewer students qualified as offenders; launch a search for drug substitutes that might satisfy stu-

dent purposes; and so forth. The solution possibilities are endless. Prudent judgment, therefore, must be used in determining when the quest for cures has gone far enough, and in determining which of the potential solutions warrants trial.

It is in the exercise of such prudent judgment that the boundaries of rationality impose restraints: without an experimental test of some sort, for example, an accurate comparison of all alternatives is out of the question. Too, since the optimum solution to a problem may vary from situation to situation and from school to school, any given decision may be subject to the vagaries of chance. And, to further complicate matters, experience has taught us that the solution to one problem often creates, in time, another problem. Contraceptives, to wit, prevent unwanted pregnancies, but they also increase promiscuity among high school students.

The implementation of a new educational policy, finally, is anything but simple. Massive investments in time and energy are required, the tensions created by those opposed to the policy must be endured, and--ironically--a well-intentioned but misguided attempt to make something better may, in the end, only make matters worse. Coleman's advice, a few years back, on school integration policy seemed at the time sensible. It may, in point of fact, still be sensible. The arguments were based upon definsible theory, the solution to the segregation dilemma seemed manageable, and while resistance was of course inevitable, there was reason to believe that both the political and operational hazards could be survived. The intervening events, however, make it clear that these forecasts were errant. Coleman himself concluded, not long ago, that the net effect of five years of court-mandated school integration left us worse off than at the outset.

One now hears--from critics with a special proclivity for hindsight--chidings to the effect that the resistance and obstacles could have been predicted in advance. They could not have. Had the mood of the nation taken a different turn, had the issues not become a basis for political crusade, had the timing not coincided with an unanticipated re-activation of pluralistic concerns, events might have gone differently. Although we seem at the moment to have lost ground, and although the barriers are presently more severe than before, it is entirely conceivable that--should the social scene take another unexpected twist--the Colemen strategy could be reinstituted with reasonable success.

The limits of rationality also necessitate decisions regarding what problems are best left to expedient omission. Well-laid plans occasionally encounter unforeseeable obstacles, and in such circumstances judicious neglect is frequently provident. Moreover, since not merely human judgment but human resources as well are finite, the struggle to make the right choice at the right time must, at times, fail.

It also should be observed, to note one further impediment to policy planning, that the infirmities of evaluation also mitigate against routinely effective decisions. Since for any specified problem the quality of the alternative solutions is relative, comparative strengths and weaknesses are not readily deciphered. In describing planned variation experiments, for example, Elmore* suggests that policy-relevant conclusions rarely can be drawn from an examination of experimental programs. Correlations can be calculated and treatment effects assessed, but the evaluator's ability to set forth relevant

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*Richard F. Elmore. Planned Variation Experiments As Policy Analysis. April 1974. Unpublished paper prepared for the Annual Meeting of the American Educational Research Association, Chicago, Illinois.

and supportable policy recommendations is, at best, minimal. The requirements of legitimate experimental design are such that generalized inference is restricted, and variation in the ways experimental programs are implemented is so sizable that little in the way of universal insights can be claimed.

Where the qualitative differences between two contemplated policies are not great, the subtleties of discrimination soon exceed the sensitivity of our evaluative apparatus. Solutions, most often, are neither entirely good nor bad, and distinguishing between the assets of the advantage, and the debits of the disadvantage, further enlarge the possibility of judgmental error. When two techniques for increasing teacher knowledge about individual differences in children are compared, for example, the differences between the two may be so slight that the choice ultimately must be based upon comparative costs, operational ease, time requirements, teacher preferences, and other secondary considerations. As the distinctions become increasingly fine, the probability of evaluative miscalculation increases, and the resulting decision may later prove inept.

For all of these reasons, consequently, carefully reasoned policy decisions may, after the hard test of reality, fail to accomplish their intent. The obstruction--to sum up--are many: the vicissitudes of fate cannot be predicted in advance, human aspirations are themselves fickle, events cannot always be anticipated, and our astuteness in matters of judgmental arbitration is itself less than perfect.

Unconventional Uses of the Conventional

What then can be said about a suitable strategy for future educational policy? The circumstantial clues are plain enough. Education must equip the present generation of young to cope with an unprecedented period of rapid

social readjustment. The bureaucratic structure of school organization had rigidified to the point where the procedures for implementing reform are excessively cumbersome. Many parents, particularly those of black and chicano children, find schooling unresponsive to the educational needs of their children. The drop-out rate remains high, student violence in the schoolhouse has reached crisis proportions and, for too many, the classroom remains a place of tedious boredom. Despite the truly superb accomplishments of education with respect to other objectives, large numbers of children cannot read adequately, write clearly, grasp the fundamentals of mathematics, or reason analytically. The traditional socialization procedures still leave something to be desired; more must be done in the way of providing a groundwork for the acquisition of vocational skills; and too little attention is given to the cultivation of those inner capacities essential to a rewarding life--managing emotional hardship, distinguishing between what is truly significant and what is merely decorative, and using one's human potential to maximum advantage.

The prognosis for the immediate future of the school system is equally obvious. The generation born between 1946 and 1967--an aberration in the population cycle--will soon matriculate and the period of expansion, now coming to an end, will be replaced by a season of decline. Public expenditure for education, which during the same period grew from 2% to 8% of the GNP, will stabilize. Assuming continued inflation, schooling will have to make-do with lesser funds and be more dollar-efficient. Few new school facilities will be constructed during the remainder of the present century, and those that are built are likely to be economy-oriented glass-fiber structures. The odds are, moreover, that school buildings will be shared by other community agencies in order to increase their utility and, at the same time, constrain public expenditure.

While the number of high school students entering college may drop from the present 47% level, we can expect that as the inevitable leveling-off occurs, half, rather than the once anticipated three-fourths, will seek institutional-based higher education. At the other end of the spectrum, in contrast, the trend toward early childhood education, because of its immense popularity, is almost certain to expand.

What is now conceived of as a potential pattern of lifelong learning may become more of a concrete reality. Theoretical investigation, in addition, presently is focusing on an educational system that would permit individuals to enter and leave at will. Specialization schools--devoted to a specific learning pursuit--may make it possible for students to participate in short-term courses for the purpose of updating job skills, preparing for a career change, or indulging a personal interest in the arts or sciences. Such an arrangement, resembling the present commercial foreign language schools, could also result in the establishment of separate academies for studying reading, mathematics, literature, and even plumbing.

The present shift toward further decentralization seems likely to be sustained. Anticipating a growing disinterest in consolidation, planners foresee classrooms that no longer are totally dependent on professional teachers. An experimental program now ongoing in California, for example, wherein large number of adults and high school students serve as non-salaried tutors for primary grade children, appears to have evidenced some promise. While the approach is primitive, and the logistical problems formidable, the results to date offer a basis for optimism.

The future of the nine-month school, too, is open to question. Learning will be accessible on a year-round basis, if present trends are sustained, and a substantially greater segment of formal education will be community-centered.

As the full force of instructional technology makes its impact, further and more definitive departures from tradition and custom are probable. The use of more prime-time commercial television for educational purposes could be legislatively mandated and, inferring from present developmental currents, heavy use will be made of instructional video-tapes. There is, in fact, speculation that self-instruction, through such tapes, may make it possible for students to acquire high school diplomas and college degrees, without set time requirements. Individuals will engage in the necessary preparation, demonstrate proficiency on a standardized examination, at will, and receive due credit.

Beyond all this, with the advent of anticipated refinements in miniaturization and computer technology, maching-assisted learning undoubtedly will become a good deal more commonplace. The present state-of-the-art is something less than spectacular, but recent years have brought extensive advances, and the horizon is fraught with potential.

Against all of this, then, the cluttered, uncertain and sometimes contradictory panoply--created by an amalgamation of unresolved difficulties from the past, present infirmities, and future requirements--what form and substance ought guide educational policy planning?

Research As Reformation

We must, seemingly, embark upon an era of experimental educational reform. In sharp deviation from what has gone before, we must seek to test bold new constructs that strike at the heart of our severest and most fundamental problems. As these new constructs are tried, in the hotbed of reality rather than in the educationists' equivalent of the scientists' laboratory, they must be altered and revised, bent and twisted, and progressively reshaped to fit continually changing conditions. Depending upon the adequacy of their fit, they

must then be retained, replicated, rejected, or reinvented. Thus through successive, small-scale approximations, we must explore one approach and then another until we reach a workable solution to each dilemma.

If we are to accomplish these missions, two departures from ordinary evaluation procedure are essential. First, we must propagate our mastery of appraisal techniques which involve quasi-experimental designs, and second, we must forage for new evaluation methodologies that can illuminate significant dark-spots lying outside the scope of conventional scientific measurement.

Donald Campbell's insightful projections of "reforms as experiments," which eventually led to exploratory research designs that avoided the fetters of conventional technique, constitute a promising beginning. Seeking to explain our long-standing inability to deduce significant generalizations from the evaluation of social reforms, Campbell suggests that, technical limitations aside, the research community has been put at a great disadvantage by its unfortunate habit of advocating particular innovations as fail-proof solutions. Unable, then, to bridge the gap between "promise and potential" we are viewed by our critics as either charlatans or as fallen heros.

Much could be lost, nonetheless, if we overlook the importance of conjoining scientific measurement with other forms of inferential evidence. Humans, after all, learned from their mistakes long before the invention of regression analysis. Hunch and intuition, conjecture and speculation, perception and recognition--these too provide us with ways of knowing. If, as could well be the case, our aptitude for solving education's egregious difficulties is more dependent upon creative insight than on sheer volume of effort, artistic discernment may be fully as important as statistical precision.

What is to be avoided, in such a program of unpretentious, self-correcting reform are the dysgenic blunders that defeated so many of our earlier endeavors.

The problems must be attacked in their natural environment, in situ, rather than in isolation from their context; we must resist the temptation to mount immense and corpulent programs on a antional scale, if only because a usable solution in one place may be quite unusable in another; we must, as best we can, suppress the self-serving aspects of policy determination, demonstrating for our constituencies--through examples from the past--that uncooperation and obstruction in the interest of private political advantage are heavily detrimental to the common good; and we must confine our endeavors to short-term efforts that bear directly upon manifestly intolerable situations.

It has, in recent time, become painfully obvious that more of the same will not do: the frontal attacks upon poverty and urban renewal have produced only limited gains; the net profit, after a decade of expensive educational change is less than we hoped for; and the massive investments in compensatory education have brought--all things considered--little cause for cheer.

Finally, large reforms cannot be launched without the amassment of substantial political support. In soliciting such support, it is easy to exaggerate both feasability and outcome. Obligation and liability are thereby placed upon the reformers; the privileges of uncumbered experimentation and calculated risk-taking are aborted; and a hart-to-resist incentive for agrandizing result is set loose. More modest interventions, on the other hand, because less is at stake, are not as subject to these dangers. Tried in the spirit of an informed, yet open-ended inquiry, they permit the experimenters to respect impulse as well as deduction, to move sequentially through both planned and impromptu variations, and to progress step-wise toward increasing levels of success. There is little in the record of human action that could not have been done better. More often than not, the margin between what was achieved, and what could have been achieved, is ascribable to scant perseverance. A

willingness to persist in the face of failure, particularly when immediate events give rise to a temporary mood of pessimism, therefore is also of essence in the conduct of renewal.

Society's standards for judging reform success are normative and pragmatic. The needed educational experiments, consequently, must involve client as well as expert in the determination of success criteria. Few of us are content to be told what we should regard as good or bad. We prefer, not only to decide for ourselves, but also to participate in the deliberations through which our destiny is recast. What we desperately lack in this connection, are legitimate approaches to educational reform in which children, parents, teachers, and tech-ical experts--together--seek problem solutions. The nature of our time, perhpas, is such that it can be no other way.

Dominant Themes - Bronfenbrenner

1. Children are the largest single alienated group in our society.
2. It is our social institutions -- because they are not responsive to basic human needs -- that most contribute to this alienation.
3. The schools, in their present organization, also contribute to such alienation.
4. Early intervention programs (preschool educational experiences involving children and their parents) although frequently successful in improving academic achievement, may also serve to alienate the young.
5. The evidence would seem to suggest that our present social mechanisms for socializing children are failing.
6. The research now on record demonstrates that we have enough theoretical knowledge to produce truly competent individuals.
7. Despite this knowledge, the schools in many instances are failing: a quarter of the society's youth, for example, still do not learn to read.
8. The stability of the family continues to disintegrate and, correspondingly, the effectiveness of the family as a socializing agent continues to diminish.
9. The growing tendency toward single-adult families is beginning to have highly deleterious consequences on our child-rearing systems.
10. Renewed attention, including the creation of new kinds of agencies, must be given to the problems of socializing youth for a changing world.

Dominant Themes - Fuller

1. Home study, technologically facilitated, is likely to characterize education in the future.
2. Education must teach children how to do more with less.
3. Education is most productive when it is conceived of as a synergistic experience.
4. Children must be taught to reason from generalized principles to particular specifics.
5. Progress in solving human problems is inhibited because we continue to labor under conventional misinterpretations and misconceptions of reality.
6. Our present system of education likely will become paralyzed.
7. In the future, education will be concerned -- less with the earning of a living -- and more with discovering how man can function in his evolving universe.
8. Federally paid for education can result in a high return and prove to be an excellent investment.
9. The ancient educational function -- integrating tradition and culture -- must be abandoned. Politics, and perhaps even the formal social sciences, cannot solve our problems. Since the dominant lesson of history is that man is adaptable, we must now teach children to use their intuition, their intellect, and their creativity in managing change.

Dominant Themes - Salk

1. Biology can be viewed as a cultural discipline with implications for the social system.
2. In view of the problems ahead, a period of theoretical-experimentation will be more advantageous than continued speculation.
3. Man's major problems lie within himself and within his human interrelationships.
4. We need a society characterized by more opportunities for both self-expression and self-control. Hence, education must seek new educational patterns.
5. The sense of futility felt by today's youth demands serious attention.
6. The young should be included in future planning.
7. If society is to reduce the harm created by greed, new values and new ethics must be embraced.
8. In the nurture of children, appropriate stimulation must be provided at appropriate stages of development.
9. Reason would dictate that a "selection" theory of learning -- wherein children are educated for the more desirable human attributes and capabilities -- should be possible.
10. Current social problems require that we teach the young to acquire a constructive method of thinking which opens the mind to new aspects of reality.
11. "We are now in transition between two major epochs in man's evolutionary history; a transition wherein previously prevailing values are forced by natural laws to undergo radical transformation and even inversion."
12. We have come to that point where we are to be tested on our capacity to limit the judgemental errors and excesses of which humans are capable.

Dominant Scenes - Boulding

1. No society has ever deliberately educated children to change their society.
2. In our present way of things some important ethics are missing: (1) the frugality ethic (2) the sisterhood ethic (3) an ethic which values humankind's empathetic capacities.
3. Education needs to break-through the insulating barriers of the larger community.
4. Age-grading produces a kind of social autism.
5. Education must begin to deal with a general decline in social competence.
6. Despite popular mystique, we are not becoming more free; rather, we are growing more rigid.
7. The next society must embrace a technology of miniatures.
8. A truly defensible educational system cannot be based upon one-school experience.
9. Despite decades of educational research, the dynamics of the learning process have been almost untouched.
10. Children should be familiarized with an a-b-c of social conflicts to match the three-R's
11. Students should be trained for peace-making roles.
12. If schooling is properly managed, altruistic behavior can be developed as a matter of course.